

A. Defense Technology Transfer Management and Oversight

The Defense Department operates a decentralized technology transfer program with the objective to transfer technology between the public and private sectors. The Military Departments are recognized as separate agencies for program implementation. However, there is collaboration, coordination, and interaction within the individual Military Departments and between the Military Departments and the Defense Agencies as this program is further developed and implemented.

The Office of Technology Transition has oversight and managerial responsibility for the Defense Department programs discussed in this report. These programs are consolidated into one office to ensure cohesion and synergy in implementation. As we've encouraged the Military Departments to look at these programs as parts of a whole, they have started integrating them and are now organizing so that, specifically, the Dual Use S&T Program, IR&D Program, and SBIR are key parts of their technology transfer efforts.

Early technology transfer legislation highlighted the importance of technology transfer to "ensure the full use of the results of the Nation's Federal investment in research and development." Part of this policy is a requirement that technology transfer is a responsibility of each laboratory science and engineering professional by job descriptions, employee promotion policies, and evaluation of job performance. Reports from our laboratories indicate this has now happened throughout the majority of our laboratory community. Our scientists and engineers as well as our laboratory directors are recognizing that technology transfer mechanisms enhance mission responsibilities.

Future Goals . . . Last Year

Our last report provided information on Service laboratory goals for FY 00. These goals were: 1) continue to conduct training in technology transfer for the Office of Research and Technology Applications (ORTAs), legal staff, S&Es, and R&D managers with an emphasis on intellectual property; 2) expand marketing efforts to include enhancing individual laboratory web sites and creating brochures featuring technology licensing opportunities, unique facilities that are available for use by the commercial sector as well as in-house technical expertise; 3) expand current efforts to identify technologies with the greatest potential for commercialization thereby enhancing patent licensing activity; and 4) enhancing collaborations with external partners through partnership intermediaries, alliances, and various state and local agencies.

We have met these goals by providing training specifically geared toward intellectual property, enhancing many of our websites to reflect technologies available for commercialization, working with our S&Es to identify technologies available for commercialization, and enhancing collaborative relationships and creating these relationships where they did not previously exist.

DoD Technology Transfer Policy

Both a DoD Directive and an Instruction were issued in May 1999 providing guidance on the DoD Domestic Technology Transfer Program. These two documents are being implemented in the Military Departments and are designed to ensure technology transfer activities are integral elements of DoD's pursuit of its national security mission and have a high priority role in our programs. We are evaluating "The Technology Transfer Commercialization Act of 2000" for changes needed to these guidance documents. One of the key changes is the requirement for additional data on patent licensing activities. We plan to design and implement procedures to collect appropriate data for this new requirement.

Defense Technology Transfer Working Group (DTTWG)

The DTTWG was established in 1994 and is comprised of representatives from each of the Military Departments and most of the Defense Agencies. This group meets monthly to review technology transfer issues requiring either consistent policy or approach from a joint DoD perspective. The issues for FY 2000 included:

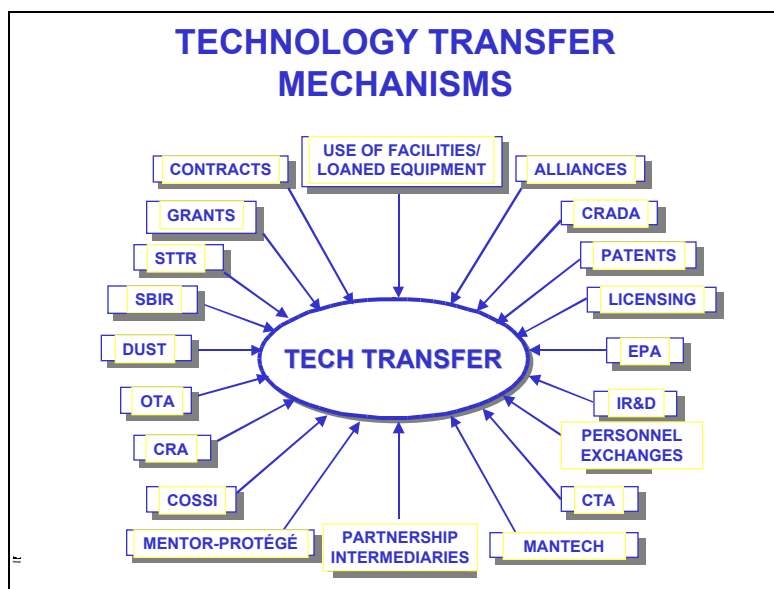
- Policy for equipment donation procedures using 15 USC 3710(i), 15 USC 3710a(b), and 10 USC 2194
- Drafting and commenting on Executive Order 12591, "Facilitating Access to Science and Technology"
- Policy for technology transfer at the Federally Funded Research and Development Centers
- Potential DoD awards for technology transfer efforts
- Need for data collection requirements for current and anticipated requests
- Participation in the Federal Laboratory Consortium for Technology Transfer, InterAgency Working Group on Technology Transfer chaired by the Department of Commerce, and the Industry/Federal Working Group on Technology Collaboration
- Use of patent royalties
- Development of a DoD Technology Transfer Handbook (in drafting stage)

Technology Transfer Mechanisms

Technology Transfer mechanisms are important to strategic planning at the laboratories to enable spin-off, spin-on, and dual use of technologies. They provide a variety of tools with the potential to leverage outside resources and, potentially, reduce the development and acquisition cost of technology products. The chart below identifies the wide variety of mechanisms that can be used for technology transfer purposes. Some of these mechanisms are discussed in later sections of this report, some are discussed here, and some mechanisms will be discussed in next year's report.

The specific number of technology transfer activities is identified in Appendix B; however, these are limited to Cooperative Research and Development Agreements (CRADAs), Patent License Agreements (PLAs), Facility Use Agreements, and Personnel Exchange Agreements. As of October 4, 2000, we had 1,919 active

CRADAs providing the ability to work with the private sector in a manner unique to this mechanism. This number of CRADAs grew to 2,248 by December 31st.



DoD paid over \$1.5M to the Patent and Trademark Office for fees associated with obtaining and maintaining patents; from those patents with active licenses and receiving royalties in FY 2000, we received \$1.6M in royalty payments. In recognition of the emphasis placed on patenting and licensing activities in The Technology Transfer Commercialization Act of 2000, DoD has been reviewing its patenting and licensing activities with a view toward ways to increase this activity since it is a true measure of technology transfer. Additionally, we have begun a study titled, “Patent Marketing and the Value of Licensing to DoD Laboratories.”

Total Active Licenses			
Service	FY98	FY99	FY00
Army	90	94	103
Navy	54	47	57
Air Force	44	55	70

Total Royalty Income			
Service	FY98	FY99	FY00
Army	\$429,600	\$535,500	\$865,900
Navy	\$917,787	\$676,555	\$698,898
Air Force	\$197,800	\$156,000	\$ 80,616

DoD has been very active in the use of Educational Partnership Agreements (EPAs). We recognize that our future scientists and engineers are today’s students needing both faculty resources and equipment to test scientific knowledge. We have a significant number of formal EPAs with universities and community colleges as well as local public school districts to provide the needed support in the form of technical assistance, personnel exchange, and loan/donation of educationally useful laboratory equipment.

DoD Technology Transfer Integrated Planning Team (TTIPT) Workshop

The fifth DoD TTIPT Workshop was held in November 2000 and hosted by the Air Force. Over 100 technology transfer professionals gathered to discuss joint projects, best practices, lessons learned, and to hear about new legislation and information sources that will effect current technology transfer efforts. Each Military Department provided an update on its technology transfer program implementation, several interagency outreach activities were presented, partnership intermediaries discussed what they do to support technology transfer activities, a training session titled, "Technology Transfer: The Devil's in the Details" was presented, legal issues were discussed, and information sources currently available were highlighted (Defense Technology Transfer Information System, Virtual Technology Exposition, Edison Database, and the Intellectual Property Management Information System). Additionally, roundtable discussions were held on four topics: Facility Partnerships, Partnerships with Universities, Software Licensing, and Equipment Donation.

Interagency Working Group on Technology Transfer (IAWG/TT)

The three Military Services and DoD participate with the other Federal Agencies on the IAWG/TT chaired by the Department of Commerce. This working group has looked at technology transfer implementation in the various federal departments, how it varies based on Agency mission, and what we can learn from each other to improve our programs. It has also reviewed international partners in CRADAs, when they should be allowed, and how to assess potential concerns arising in these instances. The IAWG/TT has proven to be an effective mechanism for discussions among the Federal Agencies and for identifying ways to showcase success in technology transfer activities.

Federal Laboratory Consortium

The Military Departments and Defense Agencies have been participating in the Federal Laboratory Consortium for Technology Transfer (FLC) since its inception in 1974. Participation is achieved through financial support, participation in annual National FLC meetings, serving as FLC Executive Board members and/or Committee Chairs, and actively supporting interagency laboratory projects. The FLC provides an opportunity to share information with other Federal agency technology transfer professionals and learn about methods employed in other agencies that could help DoD.

The FLC presents Annual Awards for Excellence in Technology Transfer to recognize laboratory employees who have done outstanding work in the process of transferring lab-developed technology. Nominations are made by the laboratory representatives and are judged by a panel of experts in the field of technology transfer. The FY 2000 Department of Defense winners of the Award for Excellence in Technology Transfer are identified along with a description of their technology in Appendix D.

DoD representatives serve in both elected and nonelected positions with the FLC. These leadership functions facilitate sharing of information with other Federal

Departments and agencies and contribute to specific technology transfer activities. The following personnel hold positions in the FLC:

FLC Position	Name/Organization
FLC Vice Chair Chair, Planning and Policy Committee Chair, Nominating Committee	Dave Appler, DTIC
Chair, Program Committee	Norma Cammarata, Army Research Laboratory
Chair, Training Committee	John Griffin, Army Topographic Engineering Center
Chair, Awards Committee	Soheir Ibrahim, Army Yuma Proving Grounds
Co-chair, Legal Issues Committee	Vincent Ranucci, Army Soldier Systems Command
Coordinator, Mid-Atlantic Region	Richard Dimmick, Army Research Laboratory (Aberdeen)
Coordinator, Far West Region	Michael Sullivan, Naval Air Warfare Center, Weapons Division, Point Mugu
FLC Executive Board Member-At-Large	Sharon Borland, Army Cold Regions Research and Engineering Laboratory
FLC Executive Board Member-At-Large	Kurt Buehler, Air Force Flight Test Center
FLC Executive Board Member-At-Large	Karen Gordon, Army CECOM, Night Vision Electronic Sensors Division

In addition to the above positions, Mr. John Todaro, Director, Office of Technology Transition, Office of the Deputy Under Secretary of Defense (Science and Technology), and Mr. David Rossi, Department Head, Industrial Programs, Office of Naval Research, are currently serving on the National Advisor's Board to the FLC.

Industry/Federal Working Group on Technology Collaboration

The Industrial Research Institute's External Research Directors Network is working "to enhance the effectiveness of technological innovation in industry." Federal technology transfer was originally designed to ensure full use of the science and technology resources of the Federal Government to enhance the competitiveness of U.S. industry. These two objectives have merged with this working group on technology collaboration. DoD, and other Federal Agencies, are working to identify how best to provide access to the federal laboratories for private industry, how to identify specific capabilities and availability, and what mechanisms exist or need to be developed to allow the synergy of industry and government resources to be fully realized.

Defense Technology Transfer Information System (DTTIS)

The Defense Technical Information Center (DTIC) maintains the DTTIS in cooperation with the Military Services and Defense Agencies. As of December 31, 2000, the DTTIS contained project information on 3,960 DoD Technology Transfer Activities, including 2,248 active CRADAs and 201 active PLAs. Numerical data from DTTIS is available at Appendix B.

The Technology Transfer Commercialization Act of 2000 was signed into law on November 6, 2000, providing additional guidance on licensing of federally owned inventions and CRADAs. It also requests specific data on utilization of federal technology. The specific data required to respond to this request are not currently collected by the Defense Department. However, we plan to design an Intellectual

Property Management Information System (IPMIS) to provide the requested information. This IPMIS should provide the data in a manner consistent with the request and should allow for easy transition into the DTTIS for these new data elements.

Partnership Intermediaries

Last year's annual report discussed the various partnership intermediaries currently being used by the Defense Department activities. This year, we are focussing on the one partnership intermediary directed by Congress, TechLink. TechLink has proven beneficial in the DoD effort to transfer technology to the private sector.

TechLink

DoD began to sponsor TechLink in July 1999 as a regional technology transfer program. TechLink is a program established at Montana State University in Bozeman, Montana, to facilitate DoD technology transfer between companies in the TechLink region and all the DoD laboratories for development, transfer, and commercialization of new technologies. TechLink focuses on industries important to its region: Advanced Materials, Aerospace, Agriculture, Biomedical/Biotechnology, Electronics and Telecommunications, Environmental Technologies, Forest and Wood Products, Information Technology and Software, and Photonics and Sensors.

One of the key components of this program is a patent mining process which allows review of DoD-owned patents to determine which ones are ripe for commercialization efforts. This process begins with an understanding of industry focus area needs, an identification of technology applications, and a review of where these needs and applications intersect for technology transfer, development, or commercialization.

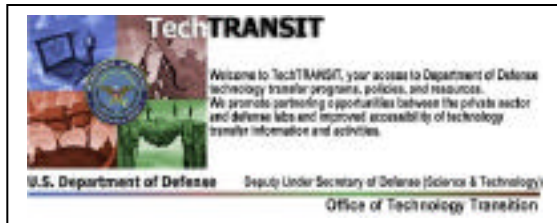


In an effort to increase awareness of DoD technology transfer opportunities as well as of TechLink as an agent for DoD technology transfer, TechLink developed a Strategic Marketing Campaign. A central part of the marketing campaign was the effort to concentrate initially on three industry focus areas: Photonics/Sensors, Electronics/ Telecommunications, and Biomedical/Biotechnology. This marketing campaign uses multiple tools: advertising, website banners, direct marketing, and personal contacts. An example of the print ad is the photo insert with this discussion and a larger version on the back cover of this report.

TechLink success is measured on the outcome of its transactions. One metric is the number of partnerships facilitated between DoD and the private sector in the TechLink region. In this first year of operation, TechLink facilitated

fourteen DoD-related partnerships and two patent licensing agreements. As we continue in the second year of operation, there are opportunities for more partnership arrangements through licensing agreements, Cooperative Research and Development Agreements, other partnership arrangements, and SBIR program awards.

Websites



TechTRANSIT is the gateway to DoD technologies promoting partnering opportunities between the private sector and Defense laboratories. The website address is <http://www.dtic.mil/techtransit>. This website provides information of interest to the technology transfer community and includes a DoD laboratory search capability to assist in finding a specific technology or laboratory.

Virtual Technology Exposition

The Virtual Technology Exposition (VTE) was created to provide the defense community with information on the latest technological advancements from the defense and commercial sectors. Access to this information will enable program managers to integrate advanced research into more extensive developmental activities and reduce product life-cycle costs. The Web site (<https://vte.dtic.mil>) is provided as a restricted service by the Deputy Under Secretary of Defense, Science and Technology (DUSD[S&T]).

The VTE provides the S&T community, industry, academia, and the acquisition and requirements community with advanced browse technology, full-text search capabilities, multimedia tools, the ability to submit information, and E-mail services that let users know of updated information. The VTE contains reference information, points of contact, descriptions of technology advancements, articles from professional journals, and references to related websites on a wide variety of subjects.

The VTE is a new Web site and is continually expanding its database of information on emerging technologies. As it matures, its advanced features should enable users to—

- Assist Program Managers to plan for future technology upgrades
- Monitor commercial technology and product development
- Look for technologies that show promise of enhancing Military capabilities
- Choose which technologies to leverage and which to develop with their own investments
- Access information that can lead to developing and refining requirements
- Check on the availability of resources for analysis of alternative assessments
- Obtain better information to better leverage ongoing and future technology development

- Assist industry in planning for future business opportunities
- Showcase research efforts to a broader audience.

The site will also have access to information about international research activities through an interface with the International Technology Watch Partnership (ITWP) website. Additional information on this website is available in Section E, Defense Technical Information Center.

Future Goals

We realize the Department's intellectual property needs to be better managed. The Technology Transfer Commercialization Act of 2000 identified specific data requirements for use in determining the utilization of federal technology. Although no funds were provided for this purpose, we plan to design and implement procedures to collect appropriate data for this requirement. We anticipate being able to supply the majority of the information in FY 2002 and the remainder in FY 2003. The system we are attempting to develop to assist in managing the Department's intellectual property is called the Intellectual Property Management Information System (IPMIS).

We are working toward guidance on donations of surplus equipment to schools using 10 United States Code 2194 and 15 United States Code 3710(i) so that we are consistent in the approach for these donations and so that we can track the items donated under these authorities. We are encouraging our laboratories to use these authorities to help ensure a well-trained future workforce is available to meet science and technology needs of the future.

We anticipate increased usage of the TechLink Partnership Intermediary by the Department laboratories as a result of TechLink's support thus far. TechLink is proving beneficial in finding partners for technology transfer purposes, both within the federal laboratory system and in the private sector. We are encouraging use of this resource for the further development and/or commercialization of technologies.